

Application No.: 10/717,716

IN THE CLAIMS:

1. (original) A low alloy steel, characterized by consisting of, by mass %, C:0.2-0.55%, Si:0.05-0.5%, Mn:0.1-1%, S:0.0005-0.01%, O(Oxygen):0.0010-0.01%, Al:0.005-0.05%, Ca:0.0003-0.007%, Ti:0.005-0.05%, Cr:0.1-1.5%, Mo:0.1-1% and Nb:0.005-0.1%, and the balance Fe and impurities; and also characterized by the impurities whose contents are restricted to $P \leq 0.03\%$ and $N \leq 0.015\%$; and further characterized by containing composites of inclusions of not greater than $7\mu\text{m}$ in major axis with an appearance frequency of not less than 10 pieces of composites per 0.1mm^2 of the steel cross section, wherein the composite comprises an outer shell of carbonitride of Ti and/or Nb surrounding a nucleus of oxysulfide of Al and Ca.

2. (currently amended) A low alloy steel, characterized by consisting of, by mass %, C:0.2-0.55%, Si:0.05-0.5%, Mn:0.1-1%, S:0.0005-0.01%, O(Oxygen):0.0010-0.01%, Al:0.005-0.05%, Ca:0.0003-0.007%, Ti:0.005-0.05%, Cr:0.1-1.5%, Mo:0.1-1% and Nb:0.005-0.1%, and at least one alloying element selected from [[V:0.03-0.5%]] V:0-0.5%, [[B:0.0001-0.005%]] B:0-0.005% and [[Zr:0.005-0.10%]] Zr:0-0.10%, and the balance Fe and impurities; and also characterized by the impurities whose contents are restricted to $P \leq 0.03\%$ and $N \leq 0.015\%$; and further characterized by containing composites of inclusions of not greater than $7\mu\text{m}$ in major axis with an appearance frequency of not less than 10 pieces of composites per 0.1mm^2 of the steel cross section, wherein the composite comprises an outer shell of carbonitride of Ti, Nb and/or Zr surrounding a nucleus of oxysulfide of Al and Ca.

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3. (previously presented) A low alloy steel according to Claim 1, characterized by an S content of 0.0010-0.01%.

4. (previously presented) A method of manufacturing a low alloy steel that contains composites of inclusions of not greater than 7 μ m in major axis with an appearance frequency of not less than 10 pieces of composites per 0.1mm² of the steel cross section, wherein the composite comprises an outer shell of carbonitride of Ti and/or Nb surrounding a nucleus of oxysulfide of Al and Ca according to Claim 1, characterized by cooling the steel at a rate of not more than 500°C/min from 1500°C to 1000°C during the casting of the steel.

5. (previously presented) A method of manufacturing a low alloy steel that contains composites of inclusions of not greater than 7 μ m in major axis with appearance frequency of not less than 10 pieces of composites per 0.1mm² of the steel cross section, wherein the composite comprises an outer shell of carbonitride of Ti, Nb and/or Zr surrounding a nucleus of oxysulfide of Al and Ca according to Claim 2, characterized by cooling the steel at a rate of not more than 500°C/min from 1500°C to 1000°C during the casting of the steel.

6. (original) A low alloy steel according to Claim 2, characterized by an S content of 0.0010-0.01%.

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7. (previously presented) A method of manufacturing a low alloy steel that contains composites of inclusions of not greater than $7\mu\text{m}$ in major axis with an appearance frequency of not less than 10 pieces of composites per 0.1mm^2 of the steel cross section, wherein the composite comprises an outer shell of carbonitride of Ti and/or Nb surrounding a nucleus of oxysulfide of Al and Ca according to Claim 3, characterized by cooling the steel at a rate of not more than $500^\circ\text{C}/\text{min}$ from 1500°C to 1000°C during the casting of the steel.

8. (currently amended) A method of manufacturing a low alloy steel that contains composites of inclusions of not greater than $7\mu\text{m}$ in major axis with appearance frequency of not less than 10 pieces of composites per 0.1mm^2 of the steel cross section, wherein the composite comprises an outer shell of carbonitride of Ti, Nb and/or Zr surrounding a nucleus of oxysulfide of Al and Ca according to Claim ~~[[3]]~~ 6, characterized by cooling the steel at a rate of not more than $500^\circ\text{C}/\text{min}$ from 1500°C to 1000°C during the casting of the steel.